

A NEW SPECIES OF *ACMAEODERA*
(COLEOPTERA:BUPRESTIDAE) FROM
BAJA CALIFORNIA AND SOUTHERN CALIFORNIA

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ABSTRACT

Acmaeodera bacchariphaga, new species, is described from northwestern Baja California, Mexico and San Diego County, California, and its biology, habitat, and variability are discussed. The relationship of this species to others in the genus is considered in detail, with particular reference to Fall's (1899) group "Lobatae" which is recharacterized.

INTRODUCTION

On a collecting expedition to northern Baja California, Mexico during June, 1970 D. S. Verity collected a single specimen of a species of *Acmaeodera* which he immediately recognized as new. Collecting in subsequent years has produced a substantial series from the same general area, as well as a few specimens from San Diego County, California. This species is described herein so that the name may be available for inclusion in the USDA Coleoptera Catalog and for a faunal study of the Buprestidae of Baja California.

In light of the great amount of buprestid collecting done in extreme southern California it is especially interesting that a new species of *Acmaeodera* should just recently have become known. Several large collections were searched for this species but apparently only those specimens listed herein exist. For this reason considerable space is devoted to describing the habitat. Knowing this and the host plant should enable students of the group to make further observations on this beetle.

The authors gratefully acknowledge W. F. Barr, University of Idaho, for bringing to our attention the significance of the humeral angles of the elytra in the genus *Acmaeodera* and for reviewing the manuscript. We thank B. K. Dozier, Chula Vista, California for providing additional specimens for study.

Acmaeodera bacchariphaga Westcott and Verity, **new species**

(Figs. 1-7)

HOLOTYPE FEMALE: Medium-sized, moderately robust, slightly convex; head, pronotum and venter bronzy-black; pronotum with distinct purplish reflections; elytra black with faint purplish sheen, each elytron with a discal and marginal row of light-yellow markings as in Fig. 1.

Head rather coarsely, shallowly, reticulately punctate, rather densely clothed with a mixture of long erect whitish and brownish hairs; front flattened above, transversely convex at middle, flattened again anteriorly.

Pronotum twice as wide as long, considerably wider at base, distinctly narrower than elytra, strongly, evenly convex along sides, subflattened on disc, with narrow, very shallow median depression extending from apex to back of middle, and with distinct transverse depression behind front margin on either side of middle; front margin subtruncate along middle; hind margin feebly bisinuate; lateral margins entire, not visible from above, parallel for basal $2/3$ then slightly deflexed to rather squarely rounded front angles; surface with moderately placed, shallow, medium punctures on disc, punctures much coarser and reticulate laterally; surface clothed with long, erect whitish hairs (especially at sides) which are strongly interspersed with brownish hairs on disc and slightly less densely placed than on head.

Elytra twice as long as wide, widest below umbones, width at base equal to base of pronotum; sides almost vertical; humeral angles strongly, triangularly produced anteroventrally; lateral margins when viewed from side strongly arcuate to just beyond umbones, then gradually, shallowly converging to apices, rather strongly serrate on apical $3/5$, serrations more acute and pronounced towards apex; surface moderately clothed with long, erect coppery-brown hairs lightly interspersed with whitish hairs, particularly on apical $1/2$; punctures of first stria fine and subequal to interstitial punctures, gradually becoming very coarse and deep from fifth stria outward; discal striae moderately impressed on apical $1/3$; first through eighth interstitial spaces subflattened, ninth through eleventh moderately convex; interstitial punctures rather fine and shallow, slightly larger laterally; elytral punctures discrete basally; suture slightly depressed basally, flat along middle, moderately elevated from about apical $2/5$.

Ventral surface clothed with long silky-white hairs, moderately on middle, quite dense at sides; front margin of prosternum strongly retracted, with well developed rounded prominence on either side of subtruncate and moderately deflexed middle; abdomen with medium-fine punctures moderately placed on middle, dense at sides, much larger anteriolaterally on first visible sternite; last visible sternite broadly, evenly rounded apically, with very well developed, deeply undercut, rather narrowly rounded subapical plate which almost attains hind margin.

Genitalia as in Fig. 7.

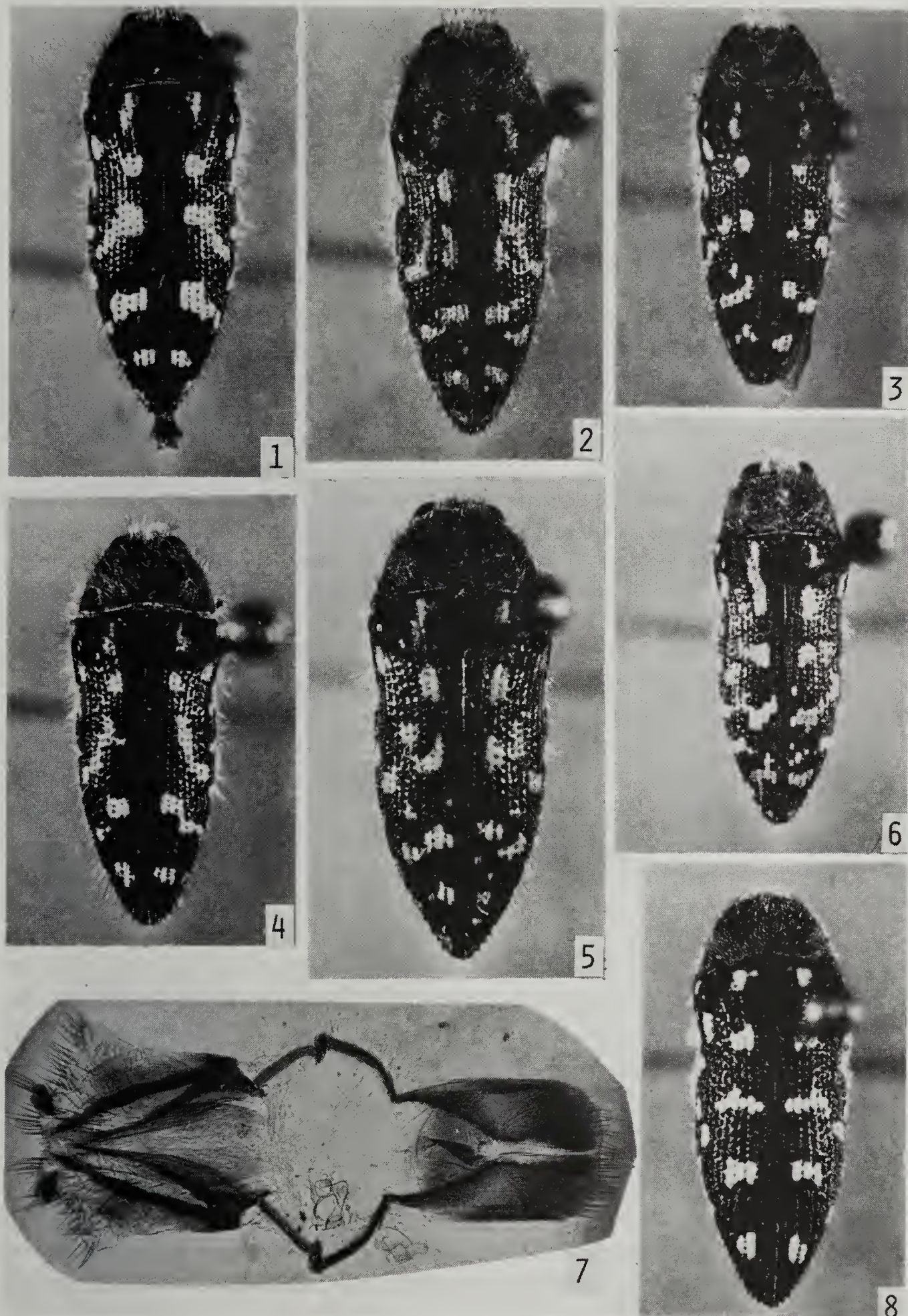
Length: 9.1 mm. Width: 3.5 mm.

Holotype (California Academy of Sciences #12747) labeled: "MEX: Baja Calif. N., 16.7 mi SE Santo Tomas, 150 m, 5-VII-1975, R. L. Westcott, on flowers of *Bebbia juncea* & *Stephanomeria* sp., HOST PLANT: *Baccharis sarothroides*". Paratypes as follows: same data as holotype (13), collected by B. K. Dozier (9). 12.3 mi SE Santo Tomas, 245 m: 13-VI-70 & 27-V-73, D. S. Verity (2); 30-VI-73, Westcott & Fisher (15); 31-V-74, R. L. Westcott, J. M. Davidson, P. D. Christenson (4); (4-5)-VII-75, R. L. Westcott (4). 10.5 mi SE Santo Tomas, 290 m, 5-VII-75, R. L. Westcott (2). UNITED STATES, California, San Diego Co., Cottonwood Creek, Barrett, 305 m, 7-VII-75 (2) and 4.6 mi SE Dulzura, 410 m, 7-VII-75 (1), R. L. Westcott. Paratypes are deposited in the collections of the California Academy of Sciences, Los Angeles Co. Museum of Natural History, Universidad Nacional Autónoma de México, United States National Museum of Natural History, W. F. Barr, F. M. Beer, B. K. Dozier, G. H. Nelson, S. G. Wellso, and the authors.

VARIABILITY

For the most part, *A. bacchariphaga* is remarkably uniform in appearance. The most obvious individual differences are in elytral maculation (Figs. 1-6) and size (6.8-10 mm long). Twelve of 53 specimens examined have a small yellow spot on each side (1 side on 1 specimen) of the pronotum at about the basal $1/4$ - $1/3$. Examination under a microscope may be necessary to detect the spots on some specimens, while on others they are clearly visible to the naked eye. All specimens possess a humeral spot on each elytron. The front margin of the pronotum may be very feebly lobed along the middle. The elytra may be serrate only along the apical $2/5$ rather than $3/5$ as in the holotype. The apex of the subapical plate may attain the hind margin of the last visible sternite. The margin of this plate varies from broadly, evenly rounded throughout to a condition in which the apical

portion is rather narrowly rounded. The latter condition applies to most males examined but in our opinion it is not sufficiently consistent to be a reliable sexual character. Westcott (1971) discussed a similar difference in *A. recticolloides* Westcott.



Figs. 1-7, *Acmaeodera bacchariphaga*, new species: Fig. 1, Holotype; Fig. 2, 12.3 mi SE Santo Tomas, Baja California; Figs. 3-6, type locality; Fig. 7, female genitalia. Fig. 8, *A. delumbis* Horn.

CLASSIFICATION

A. bacchariphaga is not closely related to any species known to us. Based largely on the structure of the humeral angles of the elytra and of the female genitalia it appears most related to *A. delumbis* Horn (Fig. 8), which belongs to the *gibbula* group of species. These have the humeral angles very strongly, triangularly produced anteroventrally. In *A. bacchariphaga* they are produced in a very similar manner but not so extensively. Several other species of *Acmaeodera* have these angles more or less produced, notably *A. rubronotata* Laporte and *A. miliaris* Horn. However, in those species the angles are produced much more ventrad and are not conspicuously triangular in outline. *A. bacchariphaga* is immediately separable from *A. delumbis* by its much longer vestiture, by not having elytral intervals 1, 3, and 5 elevated basally, and by its much smaller size.

Since Fall's (1899) key to North American species of *Acmaeodera* is hopelessly out-of-date in light of the numerous species described subsequently, it is pointless to correlate *A. bacchariphaga* therein, except to indicate that it will key to his group "Sinuatae". However, as we have pointed out, its apparent affinities lie with the *gibbula*-group which Fall (1899) called "Lobatae". He characterized this group as having the sides of the front margin of the prosternum attaining the front angles of the pronotum. We have examined numerous specimens of *A. gibbula* and *A. delumbis* and find this to be variable. If "Lobatae" is to be retained as a group, then it is much better characterized by the structure of the humeral angles of the elytra.

A. bacchariphaga bears marked superficial resemblance to the more robust, heavily marked forms of *A. mojavei* Westcott, from which it can be most readily distinguished by its bronzy-black pronotum and well developed subapical plate on the last abdominal sternite. An occasional specimen of *A. serena* Fall may resemble *A. bacchariphaga*, but the former belongs to an entirely unrelated group and can easily be distinguished by the purplish-blue (sometimes greenish) cast to the elytra and elongate yellow lateral maculation of the pronotum.

BIOLOGY AND HABITAT

Dead adults and portions thereof, larvae, and borings were found in branches of broom baccharis, *Baccharis sarothroides* Gray, at most of the localities mentioned. Most work was found in the lower branches of the plant, and larvae undoubtedly utilize the crown; however, an adult emergence hole was found 1.2 m high and larval borings were located at 1.5 m. Adults were collected from flowers of *Bebbia juncea* (Benth) Greene and *Stephanomeria* sp. or were found resting on dead twigs, usually of *Hymenoclea monogyra* Torrey & Gray but occasionally on the host plant. A single adult was collected on the flower of *Cirsium* sp. in California (4.6 mi SE Dulzura), though it was observed to fly there from the vicinity of a *B. juncea* plant.

Larvae of what undoubtedly is *A. bacchariphaga* were collected from branches of *B. sarothroides* 9.3 miles west of Dulzura, San Diego Co., California, sharing this host with another buprestid, *Chrysobothris bacchari*

Van Dyke. Vegetatively, this area, at an elevation of 150 m, appears to be a transition between chaparral and coastal sage scrub. A few miles to the east, at an elevation of 410 m, the beetle was found in a disturbed area of the chaparral community. The habitat at Barrett is a mixture of open, dry flat and marginal riparian vegetation along Cottonwood Creek. Dominant plants are *B. sarothroides*, *Pluchea sericea* (Nuttall) Coville, and *Eriogonum fasciculatum* Benthams, with lesser numbers of *Artemisia tridentata* Nuttall, *Sambucus* sp., *Rhus* spp., and *Opuntia* sp.

Specimens of *A. bacchariphaga* from south of Santo Tomas, Baja California have been collected in a broad wash with an open shrub cover variably dominated by *H. monogyra*, *B. sarothroides*, *B. juncea*, *Adolphia californica* Watson, *Ephedra californica* Watson, *Eriogonum fasciculatum*, *Eriogonum elongatum* Benthams, *Haplopappus palmeri* Gray, and *Opuntia* sp. The vegetation at low elevations of northwestern Baja California consists of an interesting mixture of species, some ranging into this area from the deserts to the south or east, and some from California to the north; however, the area also has a large number of endemics. Shreve (1936) considered this vegetation to be a distinctive transition type from desert scrub to chaparral. Epling and Lewis (1947) modified this viewpoint somewhat when they noted that the coastal sage scrub plant association (a shrubby vegetation type which is more open and lower in stature than chaparral) ranges south from central California to El Rosario in Baja California and therefore includes much of the transitional zone of Shreve. Mooney and Harrison (1972), in studying an east-west transect 60 miles south of Santo Tomas, found that the transitional vegetation was present at 100 m, coastal sage scrub at 400 m, and chaparral at 800 m.

The vegetation of washes exhibits selection for species that can withstand frequent disturbance. Elements from various adjacent plant communities may frequently be found growing with species usually limited to these special conditions. Of the total of 40 species of shrubs or large perennials noted at 2 of the collecting sites in the wash south of Santo Tomas, 18 species (45%) have their main distribution to the north in California (though a few of these continue south up to 200 miles into the deserts), 9 species (23%) have their main distribution in the deserts to the east or south, while an additional 9 species (23%) are essentially endemic to northwestern Baja California. The remainder are either widespread in range or are not as yet identified. Some species in the endemic group, such as *A. californica*, extend into southwestern San Diego County as do some desert species, such as *B. sarothroides* which ranges from San Diego County and northern Baja California to New Mexico and Sinaloa. The latter's preadaptation to the disturbed soils of washes enables it to grow abundantly along roadsides throughout its range. This phenomenon provides additional potential for the dispersal of *A. bacchariphaga*; however, it appears that this beetle's range is largely restricted to the coastal sage scrub plant community.

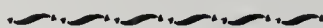
Much remains to be studied on the buprestid fauna of northwestern Baja California. However, it is interesting that both of the known species of (essentially) endemic *Acmaeodera*, *A. bacchariphaga* and *A. recticolloides* (on *E. californica*), are associated with plants that have their major distributions in the deserts to the east, and that the closest relatives of both beetles occur from central Arizona eastward.

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ADDENDUM

On May 6, 1977 numerous branches of *B. sarothroides* were examined by the senior author in Arroyo Catavincito, Baja California, and several were found to contain larvae apparently identical to those determined as *A. bacchariphaga* from localities mentioned herein. This extends the beetle's range into the Central Desert, approximately 240 km southeastward, and shows that its ecological amplitude is greater than originally surmised.



NEW TAXONOMIC COMBINATIONS
IN BRUCHIDAE (COLEOPTERA)

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In preparation for a planned catalog of the species of Bruchidae of the Western Hemisphere, reassignment of the following species names is necessary: To **Mimosetes** Bridwell—*Bruchus brevicornis* Sharp, 1885, p. 463; *Bruchus cinerifer* Fähræus, 1839, p. 21; *Bruchus dominicanus* Jekel, 1855, p. 12; *Bruchus immunis* Sharp, 1885, p. 474; *Bruchus incanus* Boheman, 1839, p. 107; *Bruchus longiventris* Sharp, 1885, p. 476; *Bruchus nubigens* Motschulsky, 1874, p. 237; *Bruchus obscuriceps* Sharp, 1885, p. 463; *Bruchus strigatus* Motschulsky, 1874, p. 237; *Bruchus viduatus* Sharp, 1885, p. 474. To **Merobruchus** Bridwell—*Bruchus limpidus* Sharp, 1885, p. 456; *Bruchus solitarius* Sharp, 1885, p. 456.

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